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AUTHOR Hecht, Jeffrey B.; And Others
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ABSTRACT

A method of qualitative data analysis that used computer software as a tool to help organize and analyze open-ended survey responses was examined. Reasons for using open-ended, as opposed to closed-ended questionnaire items, are discussed, as well as the construction of open-ended questions and response analysis. Because the method is based on grounded theory, it supports the researcher's role of building a conceptual map and coding verbatim responses. The sample for this research consisted of students at three suburban high schools and their parents who were part of an experimental project that required open-ended surveys as measures of attitude changes. Of the 243 student-parent pairs surveyed in Chicago (Illinois), 97 percent returned the first survey, and 92 percent the second. The computer-assisted technique allowed the researcher to keep track of large amounts of data, concepts, and conceptual codes, freeing time and energy for data interpretation instead of maintenance. One table presents open-ended survey items from the study. Appendix A is the response analysis conceptual map, and Appendix B lists student and parent responses to both surveys. (SLD)

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Coding Responses to Open-Ended Survey Items Using a Software-Driven Conceptual Mapping Scheme

Jeffrey B. Hecht
Sara Wills
David J. Dwyer

Technological Innovations in Educational Research Laboratory
Department of Educational Administration & Foundations
College of Education
Illinois State University
Normal, Illinois 61761

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American Educational Research Association
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Abstract

The purpose of this paper was to examine a method of qualitative data analysis that utilized computer software as a tool to help organize and analyze open-ended survey responses. Reasons for using open-ended, as opposed to closed-ended, questionnaire items were discussed, as well as open-ended question construction and response analysis. Since the method is based on grounded theory (Glaser & Strauss, 1967), the computer supported the researcher's role of building a conceptual map and coding verbatim responses. This computer-assisted technique allows the researcher to keep track of large amounts of data, concepts and conceptual codes, freeing time and energy for data interpretation instead of maintenance.

Coding Responses to Open-Ended Survey Items Using a Software-Driven Conceptual Mapping Scheme

When constructing survey instruments, researchers face the dilemma of deciding whether to use questions that display all possible answers, or to use questions that allow respondents to answer the question by choosing their own words. Two different types of question formats must be weighed by the researcher who is trying to decide between closed-ended and open-ended questions, or a combination of both kinds of questions.

If the researcher knows what to expect from respondents and feels relatively certain of knowing all possible responses, building a survey instrument simply becomes a matter of following each closed-ended question with a list of potential responses, response categories or ranges. When analyzing closed-ended responses, each response must fit a response category or it is considered error. This kind of quantitative data analysis is based on an established theory and strives to serve the purpose of adding support to the theory. Closed-ended questions and potential responses are founded in the literature and in theory.

On the other hand, if the researcher recognizes and accepts that all possible responses can never be known, that there is a need for an "other" category, or that respondents might write ideas around the edges of the paper, then the need for utilizing open-ended questions becomes apparent. Open-ended questions begin with present literature and theory, but allow respondents the freedom to reflect their personal reality in their individually determined responses. Open-ended data, a kind of qualitative data, are analyzed according to themes or concepts that emerge from the data. The process is inductive rather deductive, and generates hypotheses from the data, rather than beginning with a hypothesis. Deduction works from the top down; induction works from the bottom up, beginning with data and developing theoretical categories, concepts, and propositions from the data (Kidder, 1981). Themes and concepts from the response data eventually build toward hypotheses and theory.

Theory development that unfolds and matures throughout the data analysis, is based on "Grounded" theory development (Glaser & Strauss, 1967), and serves as the underlying purpose of qualitative data analysis. Grounded theory is not confirmatory and does not have as its purpose the confirmation of hypotheses and theory. Instead, grounded theory development is exploratory, having as its purpose the gathering of data for knowledge and hypothesis building that generates theory. Generation of grounded theory necessitates careful and thorough data analysis. Grounded theory supports the appropriate use of both qualitative and quantitative techniques of data collection and analyses (Glaser & Strauss, 1967). For example, when survey research is based on attitude data, it is assumed that behaviors can be described and predicted from variables that accurately characterize individuals, in which case quantitative patterns can help direct qualitative investigation (Fielding & Fielding, 1986).

In a study measuring attributions of success and failure, Elig and Frieze (1979) compared and contrasted three methods of question-asking: unstructured and open-ended where respondents were asked to identify, in their own words, causes of their successes and failures; structured and unidimensional where respondents were asked about the level of importance of specific causal factors; structured and ipsative which forced subjects to estimate the relative importance of causal factors. While the study recommended further research to compare and contrast the three methods, the researchers stated that the unstructured approach provided "appreciably different" responses than those provided by structured approaches (Maruyama, 1982 pp. 552-557), a difference that they found in favor of the unstructured approach, but for which available data would not allow analysis for differences.

When constructing open-ended survey items, the researcher admittedly does not know all possible responses. According to Hecht, et al. (1992), open-ended survey questions should have the purposeful intent to: a) gather information about a particular concept, issue or subject, b) gather opinions about the concept, issue or subject, c) gather suggestions for improvement of a particular implementation, and d) increase the researcher's understanding of a concept, issue or subject (pp. 4-5).

Siedentop (1989) found that there are three levels of scientific inquiry in which qualitative research plays an important role: demonstration or description, "to reveal the operation of processes that have not been fully defined, described or analyzed" or to offer a complete and thorough description; correlation with other data, theories or studies; and functional relation with real life (p. 39). Reasons in favor of utilizing open-ended questions state that open-ended questions are valuable in situations when it would be too time-consuming for respondents to read a long list of potential choices or when respondents need to tell frustrations or opinions. Open-ended questions can also assist in clarifying closed-ended responses or help to find the most salient aspects of a topic for later use as closed-ended questions (Sepannen, 1985).

Once the questionnaire items have been constructed, and the questionnaire implemented, the researcher must consider ways to summarize the open-ended responses. In a traditional Q-sort method, the researcher would write the open-ended statements on 3x5 cards, then review the cards to let the data suggest a way to organize and categorize themes. Cards were sorted into piles that represented categories of comments (Seppanen, 1985). Other traditional methods included using color-coded index cards and wall-mounted systems (Jacobs & Aron, 1987), color coding or coding abbreviations in margins, stickers or photo copying important data pieces for increased visibility (Stuck, 1989).

Utilizing computer software is a more recent method of organizing and remembering ideas brought to the researcher through open-ended responses. The process of analyzing open-ended responses, regardless of method, is based on qualitative

methods of careful data analysis and interpretation. When using computers to analyze qualitative data, several questions have come up about using a tool that has been historically used to analyze quantitative data. Concerns include the use of particular software packages that could force their framework onto the researcher and influence the outcome of the data analysis, and concerns for limiting rather than increasing the researcher's perspectives on the data and its analysis (Martin, 1991, p. 226). Early concerns for using computers for the analysis of qualitative data had to do with the formalization of concepts into computer terms and the development of appropriate computer languages. Concerns were also related to early problems "debugging" systems (Diesing, 1971).

As the qualitative research usually generates large amounts of data the computer can serve as an invaluable tool in handling the mechanical aspects of the research project. Mechanical aspects include operations where masses of data are disassembled and then reassembled through recording, searching, cutting, pasting, indexing, linking and general text editing (Martin, 1991, p. 226). Computers have potential as "super filing systems," that help to organize, manipulate, cross-reference and provide different perspectives of data (Winer & Carriere, 1990, p 213), and for data storage and retrieval (Conrad & Reinharz, 1984). Utilizing computer software assistance with mechanical operations allows the researcher to focus on the efficient examination and interpretation of the data according to contextual meaning (Conrad & Reinharz, 1984; Martin, 1991, p. 226; Seidel & Clark, 1984, p. 123). Software also allows the researcher to simultaneously collect and analyze data, another aspect that supports grounded theory building (Pfaffenberger, 1988). The computer should "enhance," not "control" work (Conrad & Reinharz, 1984).

Presently, there are a number of qualitative data analysis software packages available (Jacobs & Aron, 1987; Seidel & Clark, 1984; Sepannen, 1985; Stuck, 1989; Tesch, 1990). When choosing a software package, it is important to remember that the qualitative process of data analysis that leads to theory development is the key. A selected software package should fit the researcher's purposes. Illustrating these points required the application of computer analysis techniques to a particular qualitative textual data analysis effort. The co-authors of this paper selected the computer software "Flextext" for use in the data analysis of open-ended responses that were gathered as part of an ongoing evaluation project (Project Homeroom, see Hecht et al., 1992). Reasons for selecting Flextext included its ability to import word processed verbatim textual responses, to keep track of coded responses in researcher-determined concepts, and to export frequencies of coded concepts into SPSS/PC+ where frequencies could be linked with other data files including demographics and closed-ended survey responses. From the onset, researchers recognized that the software only served as a tool to assist in data management.

Method

Sample

The sample for this research consisted of students at three suburban high schools and their parents who were part of an experimental project (entitled Project Homeroom) supported by Ameritech and IBM, to link learning and technology, home and school, students, teachers and parents. The role of the research team was to evaluate Project Homeroom. Since part of the evaluation effort including ascertaining changing attitudes about Project Homeroom, the researchers included several open-ended items as part of evaluation surveys. Survey instruments also included several closed-ended items to gather demographic information and information about respondents' familiarity with computer hardware and software. Survey questionnaires were administered two times during the 1991-92 academic year. Of the 243 student/parent pairs surveyed, 471 individuals returned the first survey instrument (97%) and 449 returned the second survey instrument (92%).

Instrumentation

The first questionnaire included nine open-ended questions. The second questionnaire included seven questions that were open-ended. For both surveys, individual responses, usually one or two sentences in length, were rich with detail that did, or sometimes did not, pertain to the question asked. A list of the open-ended questionnaire items for both surveys can be found in Table 1.

Survey #1 Textual Response Items

#1: Before the school year started, what did you think Project Homeroom was?
#2: Why did you decide to participate in Project Homeroom?
#3: What do you expect to get out of participating in Project Homeroom?
#4: Have there been any problems with your computer or printer? Please describe any problems you might have had, and if they have been resolved.
#5: Have there been any problems with your telephone or modem? Please describe any problems you might have had, and if they have been resolved.
#6: Who has given you the most help when you have had a technical problem or question?
#7: How would you describe Project Homeroom to a close friend of yours who is interested in the Project but does not know anything about it?
#8: What is the worst thing you could say about Project Homeroom so far?
#9: What is the best thing you could say about Project Homeroom so far?

Survey #2 Textual Response Items

#1: Have there been any technical problems with your equipment? Please describe what the problem was and tell if it has been resolved.
#2: Given the choice, would you continue with Project Homeroom next year? Please explain.
#3: Project Homeroom provided opportunities for students to work collaboratively on shared projects. Please describe and rate one example.
#4: Project Homeroom combined learning across several different subject areas (ie. social science, english, etc.). Please describe and rate one example.
#5: What have you liked least about Project Homeroom this year?
#6: What have you liked most about Project Homeroom this year?
#7: How can Project Homeroom improve next year?

Table 1: Open-Ended Survey Items from Project Homeroom

Procedures

Open-ended responses were typed into the computer (an IBM PC-clone 486) utilizing the WordPerfect (MS-DOS version 5.1) word processing software, then exported from word processing into Flextext (version 2.1). Based on qualitative methods of "thematic analysis," defined as "the clustering and presentation of material by key themes found in the study" (Rist, 1982), researchers began building a conceptual model to help

create a clear representation of the data that would allow categorization of themes and ideas expressed by the respondents (Schutz, 1989; Winer & Carriere, 1990).

The researchers started the process by randomly reading responses and doing a traditional "Q-sort" of random responses. Broad categories of response themes included positive and negative ideas about aspects of Project Homeroom. The "Textual Responses Analysis Conceptual Map" (Appendix A) served as an outline as researchers began to read and consider individual verbatim responses for coding. It should be noted that the Flextext computer program requires the user to place (and use) a numerical value for each concept to be coded. While somewhat confusing at first (substituting numbers for codewords and phrases) this technique actually provided to be beneficial as it allowed for the organization of a hierarchy of the concepts being coded.

Even though we started with an outline we recognized that all possible concepts could not be known at the beginning. Identifying concepts is a discovery process where concepts or themes must emerge from the data (Wildemuth, 1990). During the actual coding process, the conceptual map continued to grow and change as it was revised and added to, but from which, no concepts were removed while survey responses were being evaluated.

The coding phase of the data analysis process has two meanings: coding to attach concept labels to segments of text and, according to original writings of Glaser and Strauss (1967) on grounded theory, to link theory to the data (Richards & Richards, 1991, p. 247). Analysis of verbatim response data requires segmenting the data, coding each segment based upon discovered themes or concepts, and compiling occurrences of a theme or concept (Wildemuth, 1990, p. 330).

When coding open-ended responses during the evaluation of Project Homeroom, all concepts were considered for all respondents, schools and questionnaire items. All responses were coded at least one time, even if they were coded as a "no response" or "meaningless" response. Many responses held more than one concept and were therefore multiply coded for all written ideas and for richness of detail. Tables totaling student and parent respondents indicating particular concepts are presented in Appendix B. As this paper does not deal with the results of Project Homeroom per se, we direct readers interested in the analysis and interpretation of this data to the complete report from the first year of Project Homeroom (Hecht, et al., 1992).

An interesting and useful feature of the Flextext computer program is its ability to export the coded data to a text file suitable for reading by SPSS/PC. This is fortunate since the analysis capabilities of Flextext are severely restricted to frequencies kinds of manipulations without the sometimes useful relational techniques (crosstabulations, for example). After coding into Flextext the survey responses were then exported into SPSS/PC+ (version 4) for continued analysis. This process, and the SPSS/PC+

techniques for manipulating the exported data, are beyond the intended scope of this paper but are not difficult to understand or quickly master.

Results and Discussion

Computer assisted analysis of open-ended responses of students and parents to Project Homeroom offered opportunities for between group comparisons, for recognizing trends in the response data, and for full recognition of the importance of a single, unique response (Glaser & Strauss, 1967). Because researchers did not have to be as concerned with the mechanics of organizing responses and response data, they were given the freedom to be actively sensitive to commonalities and differences in the responses. Sensitivity to the data lead to the building of hypotheses and a better understanding of what was actually being said for interpretation.

Utilizing a computer software program does not save time, initially, and may actually require greater time expenditure than traditional methods. All responses must be entered into the computer through word processing. Each verbatim response must be "listened to" and coded, according to a preconceived yet evolving conceptual map. Concepts must be studied and interpreted so that meaning is not lost. Potential users unfamiliar with general computer usage and word processing fundamentals might find this type of task initially very intimidating. While potential overwhelming for a single analysis we fell this technique will pay off handsomely for the researcher intending to perform multiple analyses, on the same or different data, over a period of time.

Letting computer software handle mechanics of data organization and analysis does allow researchers to dedicate full concentration to data analysis and interpretation. Responses can be coded for multiple ideas or concepts, that are "remembered". Accuracy is reinforced as coding can be continuously viewed, checked or changed. The method of software assisted open-ended response analysis is based on "sound" reasoning within the context of the social sciences, and with sufficient supporting evidence, in line with what is already known about the subject. The method promotes significant understanding so that it can be generalized to new situations. The methodology promotes software as a data analysis aid for comparative analyses which leads to hypothesis building and theory development and refinement (Stuck, 1989, p.12).

Computers and software are useful tools as long as their limitations are kept in mind. Computers have the ability to work quickly and conveniently with large amounts of data. Computers also have the potential to apply sophisticated analytical techniques. Limitations are that collections of word repetitions are meaningless. The human dimension is necessary to interpret meanings and relationships (Pfaffenberger, 1988). Computers do not understand the data, they only manipulate them. "Data in a computer does not have 'meaning'; the meaning, like beauty, is and probably always will be in the eye of the beholder" (Winer & Carriere, 1990, p. 219).

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Appendix A: Survey #1 and #2 Textual Responses Analysis Conceptual Map

I. Unspecified Responses
- A. 10 - No response
  - 20 - Meaningless response
  - 30 - Discussion of contractual obligations

II. Responses Discussing Technology
- A. Technology in general
  1. 100 - Technology in general
  2. 109 - Software in general
- B. Computer or printer
  1. 110 - Computer/printer in general
  2. 111 - Computer
  3. 112 - Printer
  4. 113 - Monitor
  5. 114 - Mouse
  6. 115 - Keyboard
  7. 116 - Marketing i.e. of IBM
- C. Telephone or modem
  1. 120 - Telecommunications in general
  2. 121 - Modem
  3. 122 - Telephone equipment/service
  4. 123 - Telecommunications services
- D. Information services and networks
  1. 130 - Information services in general/network in general
  2. 131 - Prodigy
  3. 132 - School Local Area Network (LAN)
  4. 133 - IBM's N.E.M.A.
- E. Other technology or technical issues
  1. 140 - Electrical failure

III. Responses Discussing Problems
- A. 200 - No problems/nothing bad/no worst about Project Homeroom
- B. 210 - Problem has been reported, current status unknown
- C. 220 - Problem is current
- D. 230 - Problem has been fixed (unknown by whom)
  1. 231 - Problem fixed by corporation
  2. 232 - Problem fixed by school
  3. 233 - Problem fixed by home

IV. Responses Discussing Helpful People
- A. 300 - No one
- B. 310 - School in general
  1. 311 - Teachers
  2. 312 - School technical support staff
- C. 320 - Corporation in general
  1. 321 - Corporation technical support
- D. 330 - Someone from home in general
  1. 331 - Myself
  2. 332 - Someone else in my immediate family
  3. 333 - Another student
  4. 334 - My parent/another parent
- E. 340 - A combination of the school and corporation

Appendix A: Survey #1 and #2 Textual Responses Analysis Conceptual Map

V. Responses Discussing Wanting to Participate in Project Homeroom
- A. Knowledge about Project Homeroom
  1. 401 - I "know" what Project Homeroom is
  2. 402 - I don't "know" what Project Homeroom is
  3. 403 - Project Homeroom is not what it was said to be
  4. 404 - I am curious about Project Homeroom
  5. 405 - No particular reason for participating
- B. Desires regarding Project Homeroom in general
  1. 410 - Project Homeroom and learning about/using the computer
  2. 411 - Having free computer, printer, equipment, etc.
  3. 418 - Improved/worsened peer interactions
  4. 419 - Integrating class subjects/interdisciplinary
- C. Desires regarding the learning environment
  1. 420 - Project Homeroom and increased access to teacher(s)
  2. 421 - Improve student performance/motivation/learn
  3. 422 - Improved/better grades/education
  4. 423 - Learning in (computer) groups/classes/labs
  5. 424 - Project Homeroom is like regular school
  6. 425 - Make school work different (easier/harder)
  7. 426 - Computers as teachers
  8. 427 - Individualized learning
  9. 428 - As an experiment
  10. 429 - For the entire family
- D. Generalized good perceptions about Project Homeroom
  1. 430 - Project homeroom is a great opportunity
  2. 431 - It is good for student in future
  3. 432 - The student had no choice about participating
- E. Reports of the parent-student relationship
  1. 440 - Parent made student participate
  2. 441 - Student decided/convinced parents
  3. 442 - Project Homeroom is not for parents, is for student
  4. 443 - I(we) don't use computer much

VI. Positive Opinions about Project Homeroom
- A. General positive opinions
  1. 500 - It is fun, interesting, good
  2. 501 - Don't know, unsure
- B. Opinions about the teachers, classrooms and programs
  1. 510 - Teachers in general
  2. 511 - Field trips/projects
  3. 512 - School work on computer
  4. 513 - I like computers
  5. 514 - I am making a good personal effort
  6. 515 - I like a specific subject
- C. Opinions about tracking and group work
  1. 520 - The same kids all day/benefits of group work
- D. Opinions about communications between school and home
  1. 530 - Increased communication with school
  2. 531 - Increased communication with home/at home
  3. 532 - Improved communication skills

Appendix A: Survey #1 and #2 Textual Responses Analysis Conceptual Map

VII. Negative Opinions about Project Homeroom
- A. General negative opinions
  1. 600 - It is not fun, boring/did not like
- B. Opinions about the teachers, classrooms and programs
  1. 610 - Teachers in general
  2. 611 - Field trips/projects
  3. 612 - I am not using the computer enough
  4. 613 - I do not like a specific subject
  5. 614 - I don't like IBM
  6. 615 - I do not like computers
- C. Opinions about tracking and group work
  1. 620 - The same kids all day/disadvantages of group work
  2. 621 - Some kids do all the work
  3. 622 - It does not reflect my/student's personal effort
- D. Opinions about communications between school and home
  1. 630 - Lack of communication with school
  2. 631 - Lack of communication with home/at home
  3. 632 - Decreased communication/general lack of communication
  4. 633 - Parent would like to be more involved
- E. Opinions about the degree of difficulty of the program
  1. 640 - Too easy/did not learn much
  2. 641 - Too hard/ too much work
  3. 642 - No help/too little help
  4. 643 - No extra grading/extra credit for Project extra work
  5. 644 - Grade lowered because of Project Homeroom
- F. Opinions about course selection and electives
  1. 650 - Difficulties in scheduling electives
  2. 651 - Want alternative subjects in Project Homeroom core
- G. Opinions about organization of the project by the sponsors
  1. 660 - Lack of organization by school
  2. 661 - Lack of support by corporations
  3. 662 - It is not long enough
  4. 663 - It's a gimmick
  5. 664 - An overall lack of organization (getting started)
  6. 665 - Time/class length of Project Homeroom classes

VIII. Miscellaneous Comments
- A. 700 - New Trier's "leveling" system
- B. 701 - The Evaluator's Surveys
- C. 710 - The project is keeping kids home at night

Appendix B: All High Schools - Student Survey #1 - 222 Respondents (91.7%)

Student Survey #1 Textual Responses Conceptual Category	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9
10: No response	18	16	52	152	178	22	10	12	3
20: Meaningless response	3	1		1	1		2	1	0
100: Technology in general	1		1	1			1	7	
110: Computer/printer in general	2			6					
111: Computer	7			9				4	24
112: Printer				36					2
113: Monitor				1					
114: Mouse			1	4					
115: Keyboard				1					
120: Telecommunications in general				6					
121: Modem			1	1	9			1	1
122: Telephone equipment/service		2		1	26				8
123: Telecommunications services				2	1				
130: Information services in general/network in general	1							27	
131: Prodigy	1		1	16	9		12	5	29
140: Electrical Failure					4				
200: No problem/nothing bad/no worst about PH				1	2	3		18	1
210: Problem report, current status unknown				14	8			6	
220: Problem is current				24	14			30	
230: Problem has been fixed (general)				17	12			2	
231: Problem fixed by corporation				1	4				
232: Problem fixed by school				1	2				
233: Problem fixed by home				3	2				
300: No one						9			
310: Schools in general	1								
311: Teachers					1	127			
312: School technical support staff						1			
321: Corporation technical support						2			
330: Someone from home (in general)						19			
331: Myself						5			
333: Another student					1	46			
334: My parent/another parent						8			

Appendix B: All High Schools - Student Survey #1 - 222 Respondents (91.7%)

340: A combination of the school and corporation	1								
401: I "know" what Project Homeroom is	8	1					1		
402: I don't "know" what Project Homeroom is	24	2	2				4	3	1
403: Project Homeroom is not what it was said to be	1						1	1	
404: I am curious about Project Homeroom		2							
405: No particular reason for participating		1	4						
410: Project Homeroom and learning about/using the computer	39	45	126				42	1	35
411: Having free computer, printer, equipment, etc.	31	40	7				62	1	34
420: Project Homeroom and increased access to teacher(s)			1				21		1
421: Improve student performance/motivation/learn	4	12	14				4		11
422: Improved/better grades/education	1	4	16				2		5
423: Learning in (computer) groups/classes/labs	12		4				9	1	
424: Project Homeroom is like regular school	7						5	1	
425: Make school work different (easier/harder)	4	3	2				5		1
426: Computers as teachers	9						23		
427: Individualized learning	1	1					2		
428: As an experiment	1						4		
429: For the entire family		1							
430: Project Homeroom is a great opportunity	4	32	3				6		4
431: It is good for student in the future	1	17	17				1		3
432: The student had no choice about participating		2							
440: Parent made student participate		30							
441: Student decided/convinced parents	1	10							
500: It is fun, interesting, good	19	56	2				48	3	49
510: Teachers in general							6		38
511: Field trips/projects	2						6		15
512: School work on computer	40	1					48		15
513: I like computers		2							
514: I am making a good personal effort									1
515: I like a specific subject									4
520: The same kids all day/benefits of group work	1						8	1	14
530: Increased communications with school	15	4	4				20		4
531: Increased communication with home/at school	1		1				5		

Appendix B: All High Schools - Student Survey #1 - 222 Respondents (91.7%)

532: Improved communication skills			1				16	1	4
600: It is not fun, boring/did not like	8						5	11	6
610: Teachers in general								7	
611: Field trips/projects								6	
612: I am not using the computer enough	7						3	12	
613: I do not like a specific subject								12	
620: The same kids all day/disadvantages of group work							4	17	
621: Some kids do all the work								1	
622: It does not reflect my/student's personal effort								1	
630: Lack of communication with school	1							2	
632: Decreased communication/general lack of communication								1	
640: Too easy/did not learn much								2	
641: Too hard/too much work	1		1				17	52	
642: No help/too little help								4	
643: No extra grading/extra credit for Project extra work								2	
650: Difficulties in scheduling electives								3	
651: Want alternative subjects in Project Homeroom core								4	
660: Lack of organization by school							2	6	
661: Lack of support by corporations								1	
663: It's a gimmick	2								
664: An overall lack of organization (getting started)							2	30	
665: time/class length of Project Homeroom classes								4	1

Appendix B: All High Schools - Student Survey #2 - 223 Respondents (92.2%)

Student Survey #2 Textual Responses Conceptual Category	Q1	Q2	Q3	Q4	Q5	Q6	Q7
10: No response	116	19	31	47	13	20	33
20: Meaningless response	3	9	5	8	3	2	9
30: Discussion of contractual obligations		1					1
100: Technology in general	7				8	1	2
109: Software in general	8		6	16	1	1	
110: Computer/printer in general					1		
111: Computer	15	24	10		8	3	3
112: Printer	33		1				
113: Monitor	1						
114: Mouse	8						
115: Keyboard	9						
116: Marketing i.e. of IBM						1	1
120: Telecommunications in general	3						
121: Modem	7	1					1
122: Telephone equipment/service	9					6	
123: Telecommunications services		1					3
130: Information services in general/network in general	1						
131: Prodigy	15		11	5	1	23	1
132: School Local Area Network (LAN)	9	7	3		13		30
200: No problem/nothing bad/no worst about PH	3	1	3		5		6
220: Problem is current	14			1			
230: Problem has been fixed (general)	32						
232: Problem fixed by school	3	1					
233: Problem fixed by home	3						
311: Teachers							7
312: School technical support staff	2	1					
331: Myself	2						
403: Project Homeroom is not what it was said to be				1	4		1
410: Project Homeroom and learning about/using the computer		21	2	12		32	12
411: Having free computer, printer, equipment, etc.		10			1	38	
418: Improved/worsened peer interactions		3	19	2		19	1
419: Integrating class subjects/interdisciplinary		1	9	39	2	2	3

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Appendix B: All High Schools - Student Survey #2 - 223 Respondents (92.2%)

420: Project Homeroom and increased access to teacher(s)		1				10	2
421: Improve student performance/motivation/learn		3	1	7		3	
422: Improved/better grades/education		4	2			2	
423: Learning in (computer) groups/classes/labs		1	41	8	4	6	
424: Project Homeroom is like regular school		1			1		
425: Make school work different (easier/harder)		5		2		1	
428: As an experiment		5			1		
429: For the entire family		1					
430: Project Homeroom is a great opportunity		6	1			2	
431: It is good for student in the future		14		2		2	
440: Parent made student participate		1					
500: It is fun, interesting, good	1	49	27	10		8	1
501: Don't know, unsure	5	3	3	5	1	1	6
510: Teachers in general		16	5	2		30	
511: Field trips/projects		2	37	18		27	12
512: School work on computer		2				3	
513: I like computers		7					
515: I like a specific subject		2	55	45	1	5	2
520: The same kids all day/benefits of group work		17	11	2		26	2
530: Increased communications with school		2					
531: Increased communication with home/at school			3				
532: Improved communication skills			1	1		1	
600: It is not fun, boring/did not like	1	32	19	5	9	8	6
610: Teachers in general		4	1	2	21		5
611: Field trips/projects		1	13	9	29		9
612: I am not using the computer enough		4		2	4		15
613: I do not like a specific subject		4		20	19		5
614: I don't like IBM							1
615: I do not like computers		2		1	3		1
620: The same kids all day/disadvantages of group work		17	7	1	22	1	8
621: Some kids do all the work			21				1
622: It does not reflect my/student's personal effort					1		
630: Lack of communication with school			1	1	2		

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Appendix B: All High Schools - Student Survey #2 - 223 Respondents (92.2%)

631: Lack of communication with home/at home							1
632: Decreased communication/general lack of communication					1		2
633: Parent would like to be more involved					1		
640: Too easy/did not learn much		7	1	3	1		
641: Too hard/too much work		24	7	6	51		28
644: Grade lowered because of Project Homeroom		5	4	1	4		
650: Difficulties in scheduling electives		12		1	3		6
651: Want alternative subjects in Project Homeroom core				1			2
660: Lack of organization by school		2	2	1	7		26
661: Lack of support by corporations					2		2
662: It is not long enough		1			1		2
664: An overall lack of organization (getting started)		3			8	1	9
665: time/class length of Project Homeroom classes					3	2	
700: New Trier's "leveling" system					2		
701: The Evaluator's surveys					5		2
710: The Project is keeping kids home at night		2					

Appendix B: All High Schools - Parent Survey #1 - 196 Respondents (81.0%)

Parent Survey #1 Textual Responses Conceptual Category	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9
10: No response	69	59	89	157	166	103	75	68	58
20: Meaningless response		1	1				2		
100: Technology in general	3	2	1					2	
110: Computer/printer in general				1					
111: Computer	7			4				1	2
112: Printer				14				1	
114: Mouse				2					
115: Keyboard				4					
116: Marketing i.e. of IBM	1								
121: Modem				1	8				
122: Telephone equipment/service				3	20				
123: Telecommunications services								3	
130: Information services in general/network in general	1		1	4			1	14	1
131: Prodigy				5	6			2	11
140: Electrical Failure					1				
200: No problem/nothing bad/no worst about PH			2	6	2	11	1	32	2
210: Problem report, current status unknown				3	2			2	
220: Problem is current	1		2	8	11		2	21	1
230: Problem has been fixed (general)				14	8				
231: Problem fixed by corporation					3				
232: Problem fixed by school				3	1				
233: Problem fixed by home				1	1				
300: No one						6			
310: Schools in general				1					
311: Teachers				2		43			
320: Corporations (in general)						2			
321: Corporation technical support						3			
331: Myself					1	21			
332: Someone else in my family						1			
333: Another student						3			
334: My parent/another parent						5			
340: A combination of the school and corporation	1					1	14		1

Appendix B: All High Schools - Parent Survey #1 - 196 Respondents (81.0%)

401: I "know" what Project Homeroom is	16								1
402: I don't "know" what Project Homeroom is	17							2	1
403: Project Homeroom is not what it was said to be							1	4	
404: I am curious about Project Homeroom		1							
405: No particular reason for participating		2							
410: Project Homeroom and learning about/using the computer	12	36	76				20	2	50
411: Having free computer, printer, equipment, etc.	3	6					12		9
420: Project Homeroom and increased access to teacher(s)	6	4					5		4
421: Improve student performance/motivation/learn	5	14	3				23	1	27
422: Improved/better grades/education	10	20	9				5		7
423: Learning in (computer) groups/classes/labs		2					3		
424: Project Homeroom is like regular school	1								
425: Make school work different (easier/harder)	1	3	1				1		1
426: Computers as teachers	7						5		
428: As an experiment	5						6	1	1
430: Project Homeroom is a great opportunity		26	1				6	3	7
431: It is good for student in the future	2	16	4				15		5
441: Student decided/convinced parents		8							
442: Project Homeroom is not for parents, is for students			6				1		
500: It is fun, interesting, good	8	10	1	1			19	1	18
510: Teachers in general									6
511: Field trips/projects									1
512: School work on computer	20	8					14		20
513: I like computers									3
514: I am making a good personal effort									2
520: The same kids all day/benefits of group work									6
530: Increased communications with school	22	5	12	1			46		15
531: Increased communication with home/at school	4	5					2		1
532: Improved communication skills	1						1		
600: It is not fun, boring/did not like							1	1	
610: Teachers in general								1	
612: I am not using the computer enough								16	
614: I don't like IBM								1	

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Appendix B: All High Schools - Parent Survey #1 - 196 Respondents (81.0%)

620: The same kids all day/disadvantages of group work							1	5	
621: Some kids do all the work								4	
622: It does not reflect my/student's personal effort								7	
630: Lack of communication with school			1	1				14	
640: Too easy/did not learn much								4	
641: Too hard/too much work							1	2	1
642: No help/too little help								1	
650: Difficulties in scheduling electives								3	
651: Want alternative subjects in Project Homeroom core								3	
660: Lack of organization by school								1	
661: Lack of support by corporations							1	2	
662: It is not long enough			1					2	
664: An overall lack of organization (getting started)			1	3			1	21	

Appendix B: All High Schools - Parent Survey #2 - 122 Respondents (50.4%)

Parent Survey #2 Textual Responses Conceptual Category	Q1	Q2	Q3	Q4	Q5	Q6	Q7
10: No response	74	34	39	44	27	23	32
20: Meaningless response	1	1	8	10	3	2	7
30: Discussion of contractual obligations		1					
100: Technology in general	2		1	1	1	4	2
109: Software in general	3	3	1	1	2		2
111: Computer	5				8	8	
112: Printer	17				3		
114: Mouse	2						
115: Keyboard	4						
121: Modem	1				1		
122: Telephone equipment/service	4	1	2		5	1	
123: Telecommunications services	1		1		1		2
130: Information services in general/network in general				3	12	1	2
131: Prodigy	7	5	3	1	5	6	1
132: School Local Area Network (LAN)	4		1		2		16
140: Electrical Failure	1						
200: No problem/nothing bad/no worst about PH					18		3
220: Problem is current	6						
230: Problem has been fixed (general)	9						
231: Problem fixed by corporation	1						
232: Problem fixed by school	3						
233: Problem fixed by home	5						
300: No one					1		
312: School technical support staff	2						
321: Corporation technical support							1
403: Project Homeroom is not what it was said to be		2	1	2	7		2
410: Project Homeroom and learning about/using the computer		5		1		23	7
411: Having free computer, printer, equipment, etc.		6				12	1
418: Improved/worsened peer interactions			18	2	1	5	1
419: Integrating class subjects/interdisciplinary		1	4	24		4	
420: Project Homeroom and increased access to teacher(s)		2				11	1
421: Improve student performance/motivation/learn		9	3	9		7	

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Appendix B: All High Schools - Parent Survey #2 - 122 Respondents (50.4%)

422: Improved/better grades/education		3	2	3		1	
423: Learning in (computer) groups/classes/labs		4	3				
425: Make school work different (easier/harder)			1			1	1
426: Computers as teachers		2				2	1
428: As an experiment		2			1	1	
429: For the entire family		4		2			
430: Project Homeroom is a great opportunity		7				3	
431: It is good for student in the future		6	1			1	
442: Project Homeroom is not for parents, is for students		1	1				
443: I(we) don't use computer much		1			2		
500: It is fun, interesting, good		24	11	27		5	4
501: Don't know, unsure		2	7	6		1	2
510: Teachers in general		4		1		9	1
511: Field trips/projects						1	1
512: School work on computer		4	2	2		2	
513: I like computers		4					
515: I like a specific subject				11		3	
520: The same kids all day/benefits of group work		1	21			5	2
530: Increased communications with school		2				7	
531: Increased communication with home/at school		1	1	1		2	8
532: Improved communication skills		3		1		4	
600: It is not fun, boring/did not like		3	1	3			
610: Teachers in general				1			
611: Field trips/projects					1		
612: I am not using the computer enough		1			4		9
613: I do not like a specific subject					2		3
620: The same kids all day/disadvantages of group work		1			1		
621: Some kids do all the work			11		1		1
622: It does not reflect my/student's personal effort		1	1		1		
630: Lack of communication with school					2		
631: Lack of communication with home/at home					4		
632: Decreased communication/general lack of communication			3		1		
633: Parent would like to be more involved					5	1	4

Appendix B: All High Schools - Parent Survey #2 - 122 Respondents (50.4%)

640: Too easy/did not learn much							3
641: Too hard/too much work		1		1	3		3
642: No help/too little help		1			1		
643: No extra grading/extra credit for Project extra work		1					
644: Grade lowered because of Project Homeroom			3				
650: Difficulties in scheduling electives					1		
651: Want alternative subjects in Project Homeroom core		1			1		3
660: Lack of organization by school		2			7		5
661: Lack of support by corporations					2		1
662: It is not long enough		3					6
663: It's a gimmick					1		
664: An overall lack of organization (getting started)		1			6		2
665: time/class length of Project Homeroom classes					2		
700: New Trier's "leveling" system					2		1
710: The Project is keeping kids home at night							1